

REMARKS

This Amendment is submitted in response to the Office Action dated April 24, 2002. Claims 7, 10 and 12 are amended herein to more clearly define the invention. All amendments find support in the specification and original claims. Claims 7-12 remain pending in the application. Applicants respectfully request reconsideration and allowance of all pending claims in view of the above amendments and the following remarks.

Rejections Under 35 U.S.C. § 103

The Examiner rejected claims 7-12 under 35 U.S.C. § 103(a) as obvious in view of, and therefore unpatentable over, various combinations of three references: U.S. Patent No. 5,394,054 to Chen ("Chen"), U.S. Patent No. 5,990,610 to Matsumoto et al ("Matsumoto"), and U.S. Patent No. 5,077,498 to Odenthal ("Odenthal").

According to the Examiner, Chen discloses a cathode ray tube 78 comprising a neck portion, a funnel portion, a plurality of conductive stem pins 36 at the end of the neck portion, and an electron gun 60 positioned in the neck. The Examiner asserts that the electron gun 60 includes a triode forming the electron beam and a plurality of electrodes (grids G3, G4, and G5) for focusing electron beam 73, with the second accelerator electrode (G3 grid 68) being a cylindrical element smaller in diameter than the neck and connected to anode potential V_A ; the focus electrode (G4 grid 70) being coupled to and charged by a focus voltage V_F , where V_F is less than V_A ; and the final accelerator electrode (G5 grid 72) comprising a conductive coating 46 disposed on the inner surface of the neck and funnel of the glass envelope connected to a high anode voltage V_A via the anode button 44 in the neck. The Examiner concludes that Chen discloses the claimed invention, except for the focus electrode connected to a low voltage stem pin and the accelerator electrode connected to an isolated stem pin. According to the Examiner, however, Matsumoto discloses that a plurality of stem pins can include a high voltage stem pin 3B and several lower voltage stem pins 3A and 3C. The Examiner concludes it would have been obvious to one having ordinary skill in the art at the time of the invention to connect the accelerating electrode to high V_A through the isolated high voltage stem pin, and the focusing electrode to a focus voltage V_F through the low voltage stem pin.

Finally, according to the Examiner, Odenthal discloses that the high voltage potential should be equal to 12 kilovolts. The Examiner concludes that it would have been obvious to one

of ordinary skill in the art at the time of the invention to specify the anode potential of the CRT of Chen equal to 12 kilovolts, as suggested by Odenthal.

As to claim 12, the Examiner asserts that Chen and Matsumoto disclose all the claim limitations except the second and the accelerator electrode being connected to an anode potential of 12 kilovolts. However, the Examiner asserts that Odenthal discloses that the second electrode and the accelerating electrode should be connected to a 12 kilovolt source through an anode button for focusing the electron beam with reduced severical aberration. The Examiner concludes that it would have been obvious to include the anode potential of 12 kilovolts as disclosed by Odenthal for focusing the electron beam towards the target.

Applicant respectfully traverses the Examiner's rejections. To establish a *prima facie* case of obviousness, three criteria must be met: (1) the prior art references must teach or suggest all the claim limitations; (2) some suggestion or motivation to combine the references must be found in the prior art; and (3) there must be a reasonable expectation of success. MPEP § 2143. As further explained below, a *prima facie* case of obviousness has not been established because criteria (1) and (2) have not been met.

Claim 7 recites a CRT comprising, among other things, "a final accelerator electrode comprising a continuous internal conductive coating on the neck and the funnel." Applicants respectfully submit that Chen has been misinterpreted because, contrary to the Examiner's assertion, Chen does not teach, disclose, or suggest this limitation. Chen teaches that, after the beam 73 leaves the triode, all focusing and accelerating of the beam is done by three elements: the G3 grid 68, the G4 grid 70, and the G5 grid 72. Chen discloses that the function of the internal coating 46 is to provide a voltage to the CRT's screen 50 (col. 2, lines 32-34), but does not disclose, teach or suggest that the internal conductive coating 46 is a "final accelerator electrode." Matsumoto discloses only a particular way of arranging pins in a connector, and discloses nothing related to CRTs or einzel focusing lenses. Thus, Chen and Matsumoto taken together cannot disclose, teach or suggest a combination including "a final accelerator electrode comprising a continuous internal conductive coating on the neck and the funnel, wherein the final accelerator electrode is connected to anode potential through an anode button in the neck."

Even if, for the sake of argument, Chen and Matsumoto could be considered to disclose every element and limitation of the claim, neither reference teaches or suggests the combination

attempted by the Examiner. As discussed above, Matsumoto discloses only a particular way of arranging pins in a connector; it discloses nothing related to CRTs or einzel focusing lenses, and thus cannot suggest anything relating to the construction of a CRT. Chen teaches that all focusing and accelerating of the electron beam 73 should be done by three aligned cylindrical electrodes: the G3 grid 68, the G4 grid 70, and the G5 grid 72. The function of the conductive coating 46 is only to provide a voltage to the CRT's screen 50 (col. 2, lines 32-34). Nowhere does Chen suggest that the conductive coating 46 is or can be used for any purpose relating to the focusing or acceleration of the electron beam 73. Thus, the combination of Chen and Matsumoto cannot suggest the combination attempted by the Examiner and therefore cannot disclose a combination including "a final accelerator electrode comprising a continuous internal conductive coating on the neck and the funnel, wherein the final accelerator electrode is connected to anode potential through an anode button in the neck."

Moreover, even if, *arguendo*, Chen and Matsumoto did suggest the combination attempted by the Examiner, the combination of these two references would not result in the claimed invention. A combination of these two references would result in a CRT with an einzel focusing lens including Chen's three aligned cylindrical electrodes: the G3 grid 68, the G4 grid 70, and the G5 grid 72. By contrast, the claimed invention includes an einzel focusing lens that eliminates the need for the G5 grid 72 of Chen. Omission of an element and retention of its function is an indicia of non-obviousness. MPEP § 2144.04; *In re Edge*, 359 F.2d 896 (CCPA 1966). For the above reasons, Applicant respectfully submits that claim 7 is in condition for allowance, and requests withdrawal of the rejection and allowance of the claim.

Regarding claims 8 and 9, if an independent claim is non-obvious under 35 U.S.C. § 103, then any claim depending therefrom is also non-obvious. MPEP § 2143.03; *In re Fine*, 837 F.2d

therefore respectfully submits that claims 8 and 9 are allowable by virtue of their dependence on allowable claim 7, as well as by virtue of the features recited therein. Applicant thus respectfully requests withdrawal of the rejections and allowance of these claims.

Claims 10 and 12 both recite a CRT comprising, among other things, "a final accelerator electrode comprising a continuous internal conductive coating on the neck and the funnel." As discussed above in connection with claim 7, none of the references relied upon in this Office

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP



Todd M. Becker
Attorney for Applicant
Registration No. 43,487

Blakely, Sokoloff, Taylor & Zafman LLP
12400 Wilshire Boulevard, 7th Floor
Los Angeles CA 90025-1030
Phone: 206-292-8600
Facsimile: 206-292-8606

Enclosures: Postcard
Change of Correspondence Address
Transmittal Letter (in duplicate)



APPENDIX A - CLAIMS
MARKED-UP REPLACEMENT CLAIMS

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Pursuant to 37 C.F.R. § 1.121(c), the amended claims shown below in marked-up form correspond to the clean claims found in the amendment.

7. (Amended) A CRT including a neck and a funnel, the CRT comprising:

a stem with a number of low voltage stem pins and an isolated high voltage stem pin; and

an electron gun positioned in the neck and including a triode that forms an electron beam, the triode comprising a cathode, a biasing electrode, and a first accelerator electrode; and [a main lens including a plurality of electrodes spaced to focus the electron beam, wherein the plurality of electrodes comprises]

a main lens including a plurality of electrodes spaced to focus the electron beam, wherein the plurality of electrodes comprises

a second accelerator electrode including a conductive cylindrical element smaller in diameter than the neck, which is connected to an external potential via the isolated high voltage stem pin,

a focus electrode connected to a focus potential through one of the low voltage stem pins, and

a final accelerator electrode comprising a continuous internal conductive coating on the neck and the funnel, wherein the final accelerator electrode is connected to anode potential through an anode button in the neck.

10. (Amended) A CRT including a neck and a funnel, the CRT comprising:

~~a stem with a number of low voltage stem pins and an isolated high voltage stem pin; and~~

an electron gun positioned in the neck and including a triode that forms an electron beam, the triode comprising a cathode, a biasing electrode, and a first accelerator electrode; and [a main lens including a plurality of electrodes spaced to focus the electron beam, wherein the plurality of electrodes comprises]

a main lens including a plurality of electrodes spaced to focus the electron beam, wherein the plurality of electrodes comprises

a second accelerator electrode including a conductive cylindrical element smaller in diameter than the neck, which is connected to an anode potential via the isolated high voltage stem pin,

a focus electrode connected to a focus potential through one of the low voltage stem pins, and

a final accelerator electrode comprising a continuous internal conductive coating on the neck and the funnel, wherein the final accelerator electrode is connected to anode potential through an anode button in the neck.

12. (Amended) A CRT including a neck and a funnel, the CRT comprising:

a stem with a number of low voltage stem pins and an isolated high voltage stem pin; and

an electron gun positioned in the neck and including a triode that forms an electron beam, the triode comprising a cathode, a biasing electrode, and a first accelerator electrode; and [a main lens including a plurality of electrodes spaced to focus the electron beam, wherein the plurality of electrodes comprises]

a main lens including a plurality of electrodes spaced to focus the electron beam, wherein the plurality of electrodes comprises

a second accelerator electrode including a conductive cylindrical element smaller in diameter than the neck, wherein the second accelerator electrode is connected to an anode potential via the isolated high voltage stem pin,

a focus electrode connected to a focus potential through one of the low voltage stem pins, and

coating on the neck and the funnel, wherein the final accelerator electrode is connected to anode potential less than or equal to twelve kilovolts through an anode button in the neck.